



# Volunteer Lake Assessment Program Individual Lake Reports

## EMERSON POND, RINDGE, NH

### MORPHOMETRIC DATA

Watershed Area (Ac.):	528	Max. Depth (m):	5.2	Flushing Rate (yr <sup>-1</sup> )	2.4	Year	Trophic class	Known Exotic Species
Surface Area (Ac.):	113	Mean Depth (m):	1.3	P Retention Coef:	0.74	1982	EUTROPHIC	
Shore Length (m):	3,900	Volume (m <sup>3</sup> ):	509,000	Elevation (ft):	1167	2002	MESOTROPHIC	

### TROPHIC CLASSIFICATION

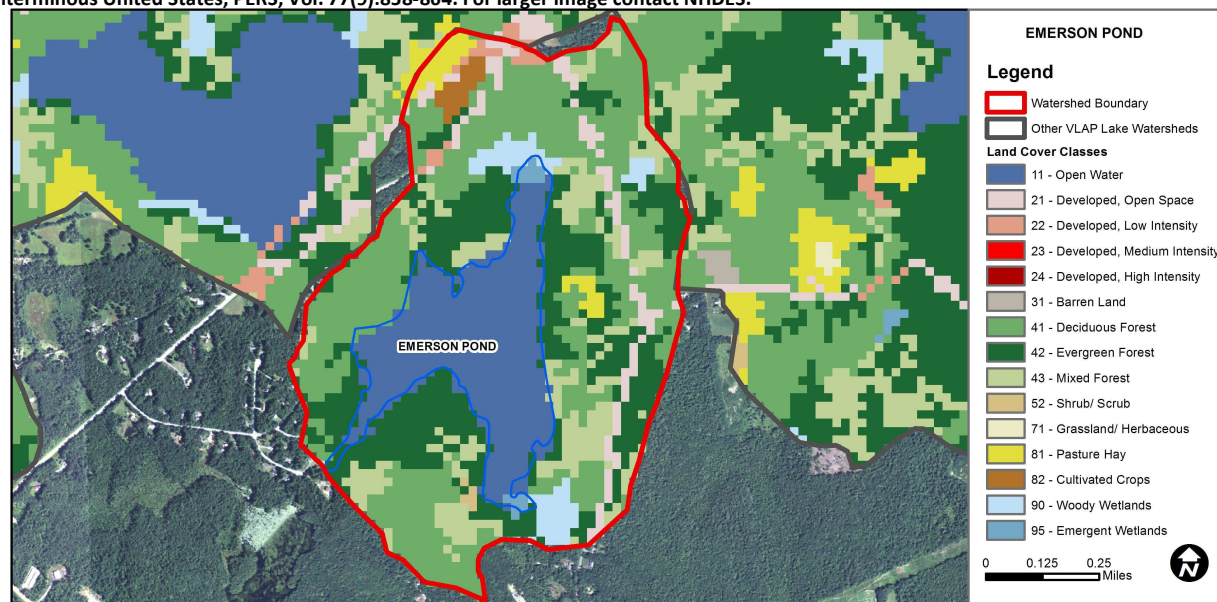
### KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Slightly Bad	>/=5 samples and median is >threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Slightly Bad	>5 samples and median is > threshold.
Primary Contact Recreation	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

### WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	19.6	Barren Land	0	Grassland/Herbaceous	0
Developed-Open Space	4.45	Deciduous Forest	32.12	Pasture Hay	1.79
Developed-Low Intensity	0.92	Evergreen Forest	24.13	Cultivated Crops	1.06
Developed-Medium Intensity	0	Mixed Forest	11.61	Woody Wetlands	3.21
Developed-High Intensity	0	Shrub-Scrub	0.23	Emergent Wetlands	0.69



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

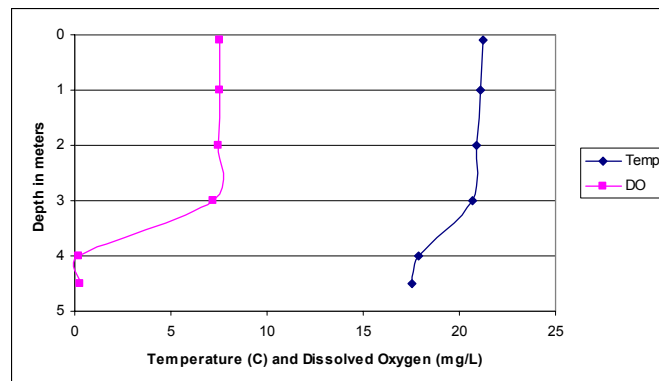
## EMERSON POND, RINDGE, NH

### 2012 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphic)

- 🔥 **CHLOROPHYLL-A:** Chlorophyll levels were slightly elevated in June but decreased in August. Average chlorophyll levels fluctuate annually, but were much lower in 2010 and 2012.
- 🔥 **CONDUCTIVITY/CHLORIDE:** Deep spot conductivity and chloride were slightly elevated indicating potential impacts from road salting in the watershed.
- 🔥 **E. COLI:** Beach E. coli levels were well below the state standard for public beaches.
- 🔥 **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were relatively low in 2012 and have historically fluctuated between 10 and 15 ug/L.
- 🔥 **TRANSPARENCY:** Deep spot transparency has remained stable ranging between 2.0 and 3.0 meters.
- 🔥 **TURBIDITY:** Deep spot turbidity levels were relatively low.
- 🔥 **PH:** Deep spot pH tends to decrease below desirable levels.
- 🔥 **RECOMMENDED ACTIONS:** Conductivity and chloride levels were slightly elevated. Work with local residents, Cathedral Pines development, and the Town to potentially develop a low salt application zone, calibrate salt spreaders, and/or utilize salt alternatives. Conduct spring runoff sampling to capture any small seasonal tributary or stormwater inputs.

#### Dissolved Oxygen & Temperature Profile



Station Name	Alk.	Chlor-a	Chloride	Cond.	E. Coli	Total P	Trans.		Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	#/100ml	ug/l	NVS	VS	ntu	
Beach					10					
Cathedral Beach					10					
Deep Epilimnion	4.6	5.08	16	92.3		10	2.69	2.77	1.29	6.62
Deep Hypolimnion				89.9		9			1.17	6.5
Vaillancourt Beach					24					

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L  
**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>  
**Conductivity:** 40.0 uS/cm  
**Chloride:** 4 mg/L  
**Total Phosphorus:** 12 ug/L  
**Transparency:** 3.2 m  
**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)  
**E. coli:** > 88 cts/100 mL – public beach  
**E. coli:** > 406 cts/100 mL – surface waters  
**Turbidity:** > 10 NTU above natural level  
**pH:** 6.5-8.0 (unless naturally occurring)

#### HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Variable	Data fluctuate annually.
Transparency	Stable	Data not significantly increasing or decreasing annually.
Phosphorus (epilimnion)	Variable	Data fluctuate annually.

This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:  
 Sara Steiner  
 PO Box 95  
 Concord, NH 03302-0095  
 (603) 271-2658  
 sara.steiner@des.nh.gov

